

**Before the
Federal Communications Commission
Washington, D.C. 20554**

In the Matter of)	
)	
Petition of USTelecom)	WC Docket No. 18-141
)	
For Forbearance Pursuant to 47 U.S.C.)	
§160(c) to Accelerate Investment in Broadband)	
and Next-Generation Networks)	
)	
)	

**REPLY COMMENTS OF
RAW BANDWIDTH TELECOM, INC.
AND
RAW BANDWIDTH COMMUNICATIONS, INC.
IN OPPOSITION TO THE
Petition of USTelecom for Forbearance**

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September 5, 2018

Introduction

The following are the Reply Comments of Raw Bandwidth Telecom, Inc. ("RBT"), and its parent company, Raw Bandwidth Communications, Inc., ("RBC") a small CLEC and Internet access provider respectively which operates in the San Francisco Bay Area, or "Raw Bandwidth" generally where the distinction is not critical. We filed opening comments on August 6th, and again write in opposition to the USTelecom Forbearance petition (the "Petition") and urge the Commission to deny it in full.

These Reply Comments respond to:

Category 1: Incumbent LEC-specific unbundling and resale mandates in section 251(c)(3) and (4) and associated obligations under sections 251 and 252

Petition Should be Summarily Denied or Dismissed

Numerous commenters, as well as INCOMPAS' pending Motion for Summary Denial¹, have provided detailed reasons why the Petition fails to meet USTelecom's burden both under the statute, and Commission rules and precedent, and Raw Bandwidth concurs.

In its Comments, the California PUC² at p.18 states:

"... FCC should simply deny the petition on that basis. Nevertheless, should the FCC decide that more analysis is appropriate, the FCC should determine, based on independent, granular data, that granting this petition would not drive smaller competitors out of the market, thereby reducing competition. As a threshold question, the FCC ought to determine whether market alternatives to UNE loops exist anywhere, and it then can determine their availability on a market by market basis."

Raw Bandwidth agrees with the California PUC that the petition should be denied, and further believes it must be denied outright as a procedural matter even if the FCC wishes to perform the analysis that the California PUC suggests. Raw Bandwidth agrees with the California PUC and other commenters that any substantive consideration of the issues in the Petition must be done on a

¹ Filed 8/6/18 in WC-Docket #18-141.

² Comments of the California Public Utilities Commission, filed 8/6/18 in WC Docket #18-141

market by market basis, and involve for a start the analysis the California PUC describes in the quoted paragraph. However, given that the petition was filed as a forbearance petition under ¶160(c) and is thus subject to the shot-clock contained in that section, the FCC would only receive a maximum of 15-months for the analysis (assuming the FCC avails itself of the 90-day extension). The Commission would be hard-pressed to perform this suggested analysis properly in such a short time, by early August next year. Petitioner chose to file a forbearance petition and thus owned the obligation to present that detailed level of evidence up front, with the petition, and it failed miserably. Petitioner should not be rewarded with the Commission cleaning up Petitioner's mess—petitioner's failure to meet its prima facie burden, and failure to perform a market-by-market analysis. Nor should Petitioner retain the benefits sought via its chosen anti-competitive vehicle under ¶160(c), requiring a majority of the FCC to vote against the Petition for it to be denied. CLECs and their customers will be disadvantaged and harmed if the Commission attempts to rush through the proper analysis in the time remaining under the statutory shot clock, particularly when instead the FCC could use the well-established NPRM process to provide proper notice, gather more detailed facts, and thus result with a cleaner and legally supportable proceeding.

The Commission should summarily deny the petition, and suggest to USTelecom's members that they should use their existing "forbearance" available in the revised copper retirement rules. Tell them that they should string fiber to everybody's house and place of business, and they'll get what you're asking for in this petition. That is the best way for the Commission to achieve its stated goals of ubiquitous fiber and next generation network deployment, and the rules already exist.

Dark Fiber Transport UNE - Duplicating This Natural Monopoly Facility Doesn't Make Economic Sense and Would Work Against the Commission's Goals

In Raw Bandwidth's Opening Comments³ at page 16 discussing the dark fiber transport UNE, I suggested a rule change to the definition of a fiber-based collocater to encourage CLECs to spend their capital resources deploying network further out to customers--including end users served from ILEC Central Offices currently in Tier 3 for the dark fiber transport UNE rules (low competition, low potential end user customer counts)--and not duplicating natural monopoly

³ Opening Comments of the instant party, filed 8/6/18 in WC-Docket #18-141.

dark fiber interoffice transport facilities of the ILEC. Specifically, by not counting as a fiber-based collocater any CLEC who deploys their own fiber or fixed-wireless from a CO solely to reach customer sites and that does not result in a competitive backhaul option. That way a CLEC performing this activity won't shoot themselves and other CLECs in the foot by taking away their needed UNE-based dark fiber backhaul from the Tier 3 CO by technically pushing the CO into Tier 2 without the presumption of new competitive backhaul option actually being met. The Declaration of Dane Jasper attached to Sonic's Opening Comments⁴ as Attachment A, provides an illustrative example of what I mean, and elucidates that interoffice dark fiber is a natural monopoly.

As the Commission has been made well aware by Sonic's and others' Comments, Sonic is deploying fiber to significant areas, predominantly residential, as fast as they can, and has a goal of doing so throughout their service area. Mr. Jasper in his declaration at ¶17 estimates it could cost \$580 million to duplicate the dark fiber interoffice facilities it currently obtains as UNEs from AT&T at TELRIC rates to connect its 195 collocations--interoffice fiber strands that by definition are spare to the ILEC and would otherwise go unused. This dramatic difference in cost is to be expected; most of the cost to place fiber is in construction, especially underground, and placing the cable. It is a modest incremental cost to deploy a larger strand count cable vs. a lower strand count since the labor is only marginally increased (mainly from additional splicing, some of which can be deferred until needed) as is the cost of the cable, but if you only need a few strands you're still going to incur all those high base construction costs whether the cable is 6 strands or 432 strands. High construction costs are a major factor in what makes this facility a natural monopoly and why it makes no economic sense to require CLECs to duplicate it, especially where spare strands are currently available in ILEC interoffice fiber cables and ILECs can receive revenue from their otherwise idle assets. I am not privy to Sonic's financials, but I feel confident positing that they don't have \$580 million dollars in change they can dig out of the couch cushions at their office. Nor do I know exactly how much they are spending on deploying their own fiber to customer's premises, but it is obvious to me watching their progress they are spending significant sums to do so, working as fast as they possibly can, and it makes no sense to force them to spend \$42 million per year (\$3.5 million per month) for debt service to duplicate this interoffice fiber instead of making efficient use of spare natural monopoly ILEC interoffice dark fiber already in the ground.

⁴ Opposition of Sonic Telecom, LLC to Petition for Forbearance of USTelecom, filed 8/6/18 in WC-Docket 18-141.

If we spread that \$580 million estimated capital expenditure over 10 years⁵ to match the period of CapEx spending the Singer Study⁶ purports to estimate (and thus exclude associated interest payments Sonic would have to make if it could get funding), and Sonic were to have to spend \$58 million per year to duplicate these facilities, that'd be more than 30% of the \$182 million upper range of increased CapEx spend in the industry⁷ that the Singer study claims would flow from forbearance, or nearly 50% of the \$117 million the Study claims for its Conservative Case, but would not result in any increased reach to customer premise locations for Sonic's fiber to the home, and side from those significant economic resources it would divert human resources (both at Sonic and at Sonic's construction contractors, work that takes knowledge and skill) from deploying service to end-user locations. Every premise that Sonic newly passes with their capital expenditures towards dark fiber loops out to customer premises is a premise with a new competitive option for Gigabit service, often the only option for Gigabit speeds. Every million dollars Sonic would be forced to spend on duplicating otherwise unused ILEC interoffice facilities results NOT just in zero new serviceable end-user customer locations, but diverts available capital and results in a loss of new end-user premises serviceable as compared to if they had those funds and human resources available to build network to end-user customer locations.

If instead Sonic and other CLECs are left free to spend all of their available capital towards deploying network out to customers and not duplicate otherwise spare ILEC facilities by (a) preservation of the dark fiber transport UNE, and (b) a change in the rules' definition of fiber-based collocators as I suggested which would specifically encourage more deployment in the least competitive and most difficult to justify central offices (the Tier 3s), the Commission would clearly and appropriately be taking steps to help deploy more FTTH at no real cost to the ILECs.

⁵ I'd note that with the proposed transition timeline, they'd have under 2.5 years to continue using their existing dark fiber interoffice transport UNEs.

⁶ Attached to USTelecom's Petition as Appendix B.

⁷ *Id* p.25.

Small Quantity of Dark Fiber Transport UNE Strands Sold is to be Expected and Doesn't Indicate a Lack of Critical Need

CALTEL in its Comments⁸ at p.16 notes that "Although total quantities may not be significant, the importance of interoffice dark fiber to provide backhaul and to connect last-mile and middle-mile networks of competitive providers together cannot be overstated." Raw Bandwidth completely concurs. In its ex-parte letter dated July 20, 2018, disclosing a July 18, 2018 meeting with WCB staff, Verizon mentions in the closing paragraph that it sells UNE dark fiber transport in "very small volumes." I want to further explain that because of its nature, it is to be expected that dark fiber interoffice transport UNE strand counts will be relatively small for every ILEC providing that element, and does not at all indicate that the UNE dark fiber transport isn't critical to CLECs.

Typically, a CLEC using the dark fiber transport UNE would like to connect its ILEC CO collocation to at its collocation in at least two other COs in different directions, perhaps a handful of others, in order to achieve physical diversity and redundancy in backhaul. The individual dark fiber UNE itself is not redundant; the CLEC must build that redundancy using alternate paths. But each link out of the CO often will only use a pair or even a single fiber strand. Raw Bandwidth's practice is to use single strand links (which use internal or external filters to carry both directions of communication in a single fiber using two different wavelengths of light) whenever possible because I believe such links are inherently more reliable, as they only depend on continuity through a single strand, whereas a dual strand link with separate transmit and receive fibers goes down if either fiber fails. Additionally, after the Triennial Review Remand Order ("TRRO"), dark fiber transport UNE availability was curtailed due to the restriction of one end being a Tier 3 CO being added, and it is only available where spare strands are available if the CO pairs (route) is eligible under the rules.

As compared to loops out to customers, dark fiber transport UNE strand volumes are expected to be very low. Relatively few fibers are needed to serve their critical purpose, and even a

⁸ Comments of CALTEL. filed 8/6/18 in WC Docket #18-141.

single strand of dark fiber transport UNE could be providing backhaul transport to connect all of the end-users serviced by a CLEC from an ILEC CO.

UNE Pricing is Not at a Discount but Based on Cost; ILEC Special Access/BDS Are Overpriced Due To Lack of Competition and NOT Evidence UNEs are Priced Too Low

As ICG Coalition's Comments⁹ point out at page 20 in their paragraph about Singer's rhetorical tricks, §251(c)(3) UNEs are not discounted from any price but are priced based on cost, which is appropriate for a monopoly and the market opening goals of §251(c)(3) and the Act. ICG goes on to point out how expensive Special Access (now ILEC BDS) are and the reasons for it. Raw Bandwidth agrees wholeheartedly. The disparity between UNE pricing and retail Special Access/BDS pricing is not evidence that UNE pricing is too low, but to the contrary strong evidence that Special Access/BDS pricing from ILECs is too high.

§251(c)(3) UNEs, especially 2-wire loops, are just elements and not complete services in general, but in the cases of DS1 loops, DS1 EELs, and DS3 loops, Special Access/BDS (before adding Internet access or other services on top) does offer direct, technically identical substitute services. Importantly, TELRIC in this case is the cost to implement the technically identical Special Access/BDS service and we can validly treat the TELRIC price for a UNE DS1 Loop, UNE DS1 EEL, or UNE DS3 loop as the Cost of Service (COS) for a Gross Margin calculation like Singer attempted (but failed at) in the Petition's Study which I discussed in Raw Bandwidth's Opening Comments section (p. 17 et seq) on the Overstated Implied Gross Margin in the Singer Study.

In the Declaration of Mark Iannuzzi of TelNet attached to MITA's Comments¹⁰ as Appendix B, Mr. Iannuzzi discusses at ¶7 the UNE cost of about \$100 for an 18-mile DS1, compared to the cost under AT&T Special Access pricing of \$1,076.60 in TelNet's market. These numbers produce a Gross Margin on this service for AT&T of $\text{RetailPrice} - \text{COS} / \text{RetailPrice}$ of $\$1076.60 - \$100 / \$1076.60 = 90.7\%$. Wow. That's a pretty good margin. Congratulations, AT&T. I'd suggest AT&T

⁹ Comments of ICG CLEC Coalition, originally filed 8/6/18, and refiled in a different document format with a motion on 8/7/18, in WC Docket #18-141.

¹⁰ Comments of The Michigan Internet and Telecommunications Alliance on Petition For Forbearance of USTelecom, filed 8/6/18 in WC Docket #18-141.

should have an investor conference call every time they sell a new Special Access DS1 in Michigan to relate the good news.

In the Declaration of Douglas Denney of Allstream attached to INCOMPAS' Comments¹¹ as Attachment 4¹², Mr. Denney includes a chart of CenturyLink UNE pricing compared to Private Line (Special Access/BDS) pricing in various states at the top of page 17 after ¶13. Here too we find plenty of examples of very high Gross Margins for Centurylink. For a DS1 UNE loop vs. Private Line Channel Term in Minnesota, we have $\$154.74 - \$33.28 / \$154.74 = 78.5\%$. For a DS3 UNE loop vs. Private Line Channel Term in Oregon, we see a Gross Margin of $\$1896 - \$363.42 / \$1896 = 80.8\%$. While not all Private Line in the chart have quite that high a Gross Margin, 8-miles of DS1 Transport at Private Line (Special Access/BDS) pricing seem to do pretty well for CenturyLink. For example in Arizona, $\$198.40 - \$41.18 / \$198.40 = 79.3\%$ Gross Margin on 8-miles of Private Line DS1 transport .

In Dane Jasper's Declaration for Sonic which I referenced in my earlier section with regard to the dark fiber transport UNE, Mr. Jasper discusses at ¶16 the extremely high prices Sonic would have to pay to substitute ILEC BDS/retail Ethernet transport services for what it can do with UNEs plus the investment Sonic has made and is making in Sonic's own equipment to light the UNE dark fiber transport facilities. \$70,000 per month times two, or \$140,000 per month, for a single CO, to achieve a total of 200Gbps, comparable to what Sonic implements itself at far less cost today. Raw Bandwidth also makes use of the dark fiber transport UNE, lighting strands with its own equipment, and I concur with Mr. Jasper. Even with a CLEC's need to purchase its own equipment (though to implement more moderate speeds for Raw Bandwidth than Sonic needs), the costs involved are what we refer to in the industry by the term of art a "no-brainer"--readily apparent with a quick study that lighting the fiber yourself makes the most sense, in every case above even moderate speeds, as compared to what's available from AT&T's Special Access/BDS. And as Mr. Jasper notes, and I concur, using the dark fiber transport UNE and lighting it yourself is more functional and flexible than lit services from the ILEC, and gives the CLEC more control over reliability. But again, the wide disparity in the cost of the UNE plus investment a CLEC must make to light it as compared to a

¹¹ Opposition of INCOMPAS, FISPA, Midwest Association of Competitive Communications, and The Northwest Telecommunications Association. Filed 8/6/18 in WC Docket #18-141.

¹² *Id.*, included in a separate document file compiling Attachments 3 through 16.

BDS option is not evidence that the dark fiber transport UNE is under priced--the UNE is priced, appropriately, based on TELRIC--rather it is strong evidence about just how overpriced ILEC BDS services are.

Special Access/BDS is an inapplicable metric when analyzing UNE pricing. UNEs are not priced based on a discount to anything, but appropriately by applying TELRIC methodology. It is no surprise that a monopolist would seek to charge high prices when not price-regulated; any for-profit business is expected to seek to maximize its profits, and a monopolist has unique advantages in doing so. And even where the Commission finds competition in a market for BDS, as other commentators have pointed out, the relevant market for an individual end-user customer and a CLEC trying to reach any particular customer with wholesale inputs is what is available to that specific customer's premise. A monopolist with ubiquitous coverage in a geographic area like the ILEC is the reason the ILEC can justify pricing their BDS high even if it means sacrificing sales in some competitive buildings to competitors if the ILEC will still win substantial business to locations that have no other options. This is why we see Gross Margins on Special Access/BDS much higher than the ILEC company averages (51.8-59.1%) gathered in Singer's Study included in Appendix B with the Petition. Monopoly prices; monopoly profits. Don't lose sight of the natural and actual monopoly, it's why §251(c)(3) and price regulation of UNEs is so important. Using TELRIC to price UNEs is appropriate, and that the TELRIC price often winds up much lower than prices the ILEC chooses for a direct substitute service when able with fewer to no price controls is evidence that ILEC Special Access/BDS pricing for these equivalent services is much too high.

Verizon's Comments

Let me now turn to Verizon's Comments¹³, which as a USTelecom member not surprisingly supports USTelecom's Petition.

At page 3, Verizon claims:

"Pleas that unbundling regulation is necessary to ensure facilities-based competition are unfounded. For example, while commenters made similar claims about the UNE-

¹³ Comments of Verizon, filed 8/6/18 in WC Docket #18-141.

Platform and line sharing for DSL, in both cases facilities-based competition thrived after the Commission curtailed regulated access to ILEC networks."

Verizon here makes the same mistake that the Singer Study included as Appendix B to the Petition where the Study assumed incorrectly that 40% was a reasonable number for first year migration to next-generation services based on the rate of migrations away from UNE-P¹⁴. As I explained in Raw Bandwidth's Opening Comments at page 23, UNE-Platform did not require any construction of loops or outside plant. Here Verizon adds the removal of DSL line sharing as a UNE, but changes after that event also did not involve any outside plant construction, and were even simpler to deal with than the migration from UNE-P.

What Verizon refers to here by "line sharing for DSL" is splitting of signals using a DSL splitter (filter) in the central office to allow the POTS voice service of the ILEC purchased by the end-user customer at retail from the ILEC directly at retail, and the DSL service from a CLEC, which uses the high frequency portion of the loop (HFPL), to share a single 2-wire copper loop from the CO out to a customer's premise. Before the FCC's TRRO, CLEC rental of the HFPL to put their DSL signal on top of an ILEC's POTS service's loop was a 251(c)(3) UNE, priced at TELRIC. The TRRO removed HFPL from the UNE list. After the TRRO, AT&T at least, offered the HFPL to CLECs through commercial agreements. But there is something you shouldn't miss--an important point that other commenters have made--which is that the availability of UNEs directly discipline ILEC pricing. Even though the HFPL was no longer a UNE, the price of a commercial offering of the HFPL to CLECs was necessarily controlled by the continued availability of UNE-L, renting the entire 2-wire loop. If ILECs didn't offer reasonable prices for the HFPL on a commercial agreement, the CLEC could simply rent the entire loop as a UNE even if they'd only run their DSL over it, thus the TELRIC-based UNE cost for the 2-wire loop effectively capped what an ILEC could try to demand for the use of the HFPL from a CLEC through a commercial agreement. The elimination of the HFPL as a UNE was even simpler than the migration from UNE-P: the CLEC either entered into a commercial agreement and continued to use the HFPL of the loop shared with the ILEC's POTS service with no technical changes, or re-provisioned the CLEC's DSL service by ordering a separate and dedicated 2-wire UNE loop to the customer's location.

¹⁴ Singer Study page 20 et seq, and rebutted in Raw Bandwidth Opening Comments page 23 et seq.

But Verizon's claim that we shouldn't worry because "facilities-based competition thrived" is belied by the fact that neither migration away from UNE-P nor the elimination of the HFPL as a UNE involved a need for CLECs to construct outside plant loop facilities or obtain them from some other non-existent source. This Petition is quite different--the ILECs are requesting relief from any rate regulation or obligation to rent at any price natural monopoly ubiquitous outside plant loop facilities which CLECs would have to construct at great economically inefficient expense in order to duplicate. The net result would be to destroy substantial facilities-based competition.

At page 10, Verizon mentions Zayo, and the size and scope of Zayo's network, suggesting they are viable competitors and wholesale input providers to other carriers in the general case. My own experience with Zayo is that they will not extend their network to serve the types of mainstreet businesses that CLECs serve with \$50-300 monthly spends over ILEC UNE facilities (and I'm not saying that more than \$300 monthly spend is sufficient to motivate Zayo, and the exact number would likely vary considerably depending on specific circumstances). Unless perhaps if your business happens to be in a multitenant building, you're unlikely to be able to get suitable service from Zayo if you run a coffee shop, or a book store, or an insurance brokerage. This is the problem of the Commission assuming that because a competitor's fiber is nearby they will be willing to incur the often significant expenses to extend their network for potential customers with relatively small monthly spends.

Zayo has expanded, but much of it was by acquisition not all by new fiber construction, and sometimes they take out a competitor by acquisition, raising prices. My own introduction to Zayo came when they acquired AboveNet and its San Francisco Bay Area assets in 2012, thus acquiring a circuit I already had active. In early 2017, Zayo closed an acquisition of Electric Lightwave (ELI), which took ELI's Optic Access subsidiary out as a competitor for fiber in the SF Bay Area, it's now just a part of Zayo. I had a deal pending with Optic Access, waiting on extension of Optic Access plant they were performing for their own needs, and Zayo's acquisition torpedoed it when they demanded a 63% increase in the monthly recurring charge from what Optic Access had offered.

Zayo's expansion by acquisition are too numerous and tangential to list here¹⁵, but they number in excess of 30. I have obtained bids on other services from Zayo, and it's apparent from the construction costs that they seek to recover in non-recurring charges for any lateral extension that it won't work for small main street businesses like the ones I mentioned or other small businesses needing modest communications services, unless potentially they are in a building already lit by Zayo which for small businesses would generally mean inside some multitenant building Zayo decided to construct into for other reasons. The economics just aren't there to extend fiber laterals to the smallest of businesses especially in undergrounded environments, but CLECs using UNE loops can reach them and service them with appropriate services at competitive prices, and install quickly without disruptive and expensive construction.

In their Comments at the bottom of page 16 et seq, Verizon claims "By the end of 2018, approximately 60 percent of telephone households will have abandoned wireline service." In context and a careful read you'll understand that they are talking only about voice service. Most of those households will still have wireline broadband service in order to connect computers, smart TVs and streaming devices, security cameras and alarm systems, and other Internet-connected devices within the home, even if the residents' voice services have switched to mobile. Many of those wireline broadband services that remain necessary and active in the home are those offered by CLECs built utilizing the UNEs the Petition seeks relief from offering under price regulation or at all through this Petition.

Verizon goes on to discuss that many customers still receiving landline voice services do so through VoIP, but does not explicitly mention that VoIP requires a broadband connection to deliver, and that some of that VoIP is riding over the top of broadband connections provided by CLECs built using UNEs. VoIP can be provided by service providers over the Internet that have no relationship with the service provider delivering the broadband Internet access the VoIP relies upon, so the FCC's Form 477 data cannot identify all of the CLEC broadband Internet access services that voice connections are dependent on.

¹⁵ https://en.wikipedia.org/wiki/Zayo_Group includes a list of Zayo's acquisitions

Verizon continues on p.18 to discuss various messaging apps, including Skype, Facebook Messenger, and WhatsApp, and mentions some usage statistics of video and voice calling. And while these apps generally can run on mobile phone devices, they also run on computers, and either way require a broadband connection of some sort. Sometimes that will be a cellular data connection particularly when using a mobile device, but even when running on mobile devices, mobile device users often connect to wifi at home in order to conserve often limited high speed cellular data for when they are outside the home due to the prevalence of monthly data caps on mobile plans (nowadays, depending on plan, often resulting in throttling or de-prioritization of mobile data once hit, if not cut off entirely when the cellular data cap is hit or the billing of overage charges as was previously common). In some areas where wireless coverage is poor, mobile phone users actually have to resort to wifi calling in order to work around mobile coverage issues at home by connecting to a wifi network and placing their calls over their home Internet connection, which the major wireless carriers have had integrated into the software running on modern handsets. Verizon's Comments make no effort to identify to what extent use of these applications rely on CLEC broadband implemented using the UNEs it seeks forbearance from. In short, "on a mobile device" doesn't equate to a lack of dependence on CLEC-provided broadband access built using UNEs especially when in the home.

At page 21, I am heartened that Verizon appears to support continued regulation of the natural monopoly loop elements at issue with this request for forbearance from 251(c)(3) and 251(c)(4) which I have tried to stress throughout Raw Bandwidth's Comments. **Verizon admits:**

"Only in limited situations—such as when **a natural monopoly** exists for a particular good or service—is public utility regulation likely to promote economic efficiency." (emphasis added) (footnote citing to Lerner Decl ¶¶11-12)

At page 22, Verizon states,

'Providers compete effectively by “establishing an infrastructure that renders them uniquely suited to serve their customers.” ' (quoting *Trinko*),

and

'The incentives to developing economically beneficial facilities dissipate once firms must “share the source of their advantage.”' (also quoting *Trinko*)

Yet neither is a problem with the natural forbearance available to ILECs through copper retirement, and the long-ago removal of dark fiber loops to customer premises as a UNE. Verizon and other ILECs can construct fiber loops to customer sites which improves their uniqueness to serve the customers when the ILEC's fiber-based services become available, and there is no obligation to "share the source of their advantage", i.e. no obligation to share the fiber loop. So why have they not done it everywhere? Because it's hard, and expensive. Because it's a natural monopoly and difficult even for a company like Verizon with a \$200 Billion+ market cap to do.

At page 33, Verizon misrepresents by omission the impact of the proposed transition plan if forbearance were to be granted. As other commentators including Raw Bandwidth have noted in opening Comments¹⁶, the proposed transition plan would end ordering for all UNEs right away upon grant and publication, immediately disrupting and stopping the day to day ordering activity CLECs use to implement moves and changes for their customers, and the ability for CLECs to add new customers using 251(c)(3) UNEs and 251(c)(4) resale.

Several commenters have pointed out that the loss of ordering ability will also hinder rectifying service problems¹⁷, and I feel that point needs a little explanation. I can't be sure if commenters are referring to the same issue I will describe, but this is certainly an issue in Raw Bandwidth's experience that is reflected in commenters' general statements:

¹⁶ In Raw Bandwidth's Opening Comments, at page 31 et seq, "Disruption Built In To Transition Proposal"

¹⁷ All Opening Comments in WC Docket #18-141 filed 8/6/18: Wholesale Voice Coalition at p.30, First Communications at p.15, TPx at p.26.

Sometimes a copper loop begins to fail in ways that are difficult to diagnose. The loop may become flakey for carrying the signals DSL and EoC equipment put on them, even though the loop tests fine on all copper tests. The issue with the loop may be the result of an intermittent problem that is hard to locate, such as a wet splice that the mere act of testing can often mask. At least for AT&T, and I would presume for other ILECs, if trouble is confirmed in the loop by the ILEC on a trouble ticket, they'll repair the trouble (often by swapping the particular troubled loop segment with a spare, or by addressing the trouble directly such as redoing a bad splice) without requiring a new order. But if the ILEC is unable to confirm trouble, it may refuse to repair or swap the loop. When facing recurring trouble sometimes the best course of action by a CLEC is to order another UNE loop to swap with the loop the CLEC knows is somehow bad but is unable to practically prove to the ILEC¹⁸. Similarly, when dealing with DSL and EoC signals, the speed the technology can achieve over the loop varies from loop to loop even to the same address, and is not based strictly on distance but also on other not-always-predictable characteristics. If the speed a loop can achieve changes due to some characteristic changing, but the loop otherwise continues to meet the minimum technical metrics for an acceptable loop, the ILEC isn't obligated to change anything with the loop and has nothing to repair. The CLEC may need to add or swap loops to meet speed commitments made to its customer for the service, and can do that on its own prerogative as long as it has the ability to order new 2-wire UNE loops. In this way, the loss of new loop ordering capability the Petition requests will hinder CLECs from properly maintaining even its embedded base of customer services implemented over its existing in-service UNEs which would be allowed to remain in place during the proposed transition period.

Dr. Lerner's Paper on Behalf of Verizon

As Appendix A to Verizon's Comments, Verizon submitted a paper "An Economic Analysis of the Impact of Forbearance from 251(c)(3) on Competition and Investments" by Dr. Andres V. Lerner. This section discusses some issues I have with the paper.

¹⁸ Lead time to ILEC trouble dispatches and difficulty arranging to meet with ILEC technicians especially if timing of when the problem will exhibit is unpredictable can make proving it to the ILEC difficult when the loop is flakey, even if at times the trouble shows up on a direct copper test and could be demonstrated at certain moments in time.

At ¶4 and again at ¶26, Dr. Lerner mentions packet-based BDS services and claims they are delivered via fiber and HFC plant, which is true. But Dr. Lerner fails to acknowledge that they are also delivered using 2-wire UNE loops by CLECs using Ethernet over Copper (EoC), which Raw Bandwidth and many other commenting CLECs do extensively.

Even legacy DS1 and DS3 circuits can be used to deliver packet-based services, particularly Ethernet, as several CLEC commentators have indicated they are doing where technically necessary. For example, Allstream's Douglas Denney in his declaration provided as Attachment 4 to INCOMPAS' Opening Comments at ¶6 states:

"Allstream will use UNE DS1s to provide Ethernet services to customers when the company is not able to use 2-wire copper loops either because copper is not available because the loop is a hybrid loop (the loop contains some fiber) or the copper loop length is too long to support digital services."

Even DS1/T-1 and Multilink DS1/T-1 when used for Internet access without adding an Ethernet layer is a packet-based service. All Internet access is packet-based because that is what the Internet Protocol (IP) is. DS1s and DS3s are not a hindrance to implementing packet-based services, they can be used as the transmission layer for packets. The industry is moving away from DS1s and DS3s for packet-based services because newer technologies are less expensive, many features of TDM are not strictly necessary for packet-based services (though not a hindrance), and other technologies are where the development to cost-effectively deliver faster packet-based speeds has been made.

At ¶11, Dr. Lerner discusses natural monopolies:

"The traditional economic rationale for public-utility regulation is that the production of a particular good or service is characterized by 'natural monopoly.' Under natural monopoly conditions, it may be efficient for a single firm to produce all market output since having a single producer minimizes costs. But having a single monopoly producer in an unregulated market may lead to allocative inefficiencies due to prices that are inefficiently high, reducing consumer welfare. Regulating the prices set by natural monopolies therefore may be economically justified. This rationale has been used to justify price and entry regulation of natural monopolies in, for example, electricity supply, natural gas transmission and distribution, and water and sewer service." (footnote omitted)

Conspicuously absent from Dr. Lerner's discussion and his list of industries regulated as natural monopolies is telephone service or at very least telecom loop distribution plant. I contend that it should not be controversial that for the market of wholesale loops to customers *it is most* "efficient for a single firm to produce all market output since having a single producer minimizes costs." I contend that a basis of the Telecom Act of 1996 and especially its regulations related to facilities-based competition like 251(c)(3)'s UNEs is based on acknowledgement that, at very least, loop facilities are natural monopolies. At first many more network elements were on the UNE list, and as I've previously discussed with respect to the TRRO and sunseting of UNE-P in Raw Bandwidth's Opening Comments¹⁹, the Commission had essentially decided that voice switching was not a natural monopoly and removed it from the UNE list, for example. And as I've also contended, we're down to the very barest of bones of natural monopoly elements with loops²⁰.

Even the conservative members of the Commission who might take ideological offense that incumbent phone companies have to share at regulated rates portion of their network should be willing to acknowledge that (a) this was the grand bargain for ILECs to get into long distance, (b) ILECs hold monopoly power over ubiquitous loops that CLECs are using and especially 2-wire loops to residential locations, (c) CLECs have made substantial investments of their own in good faith based on this bargain and continue to compete, (d) CLECs have already been relegated to obtaining the bare minimum of natural monopoly elements from the ILECs, providing the rest needed to implement service ourselves, and (e) the ILECs have at their disposal the natural forbearance of copper retirement which they should be made to reach to live up to their end of the fiber loop forbearance bargain before withdrawing CLEC access to the remaining UNE loop elements.

At ¶35, Dr. Lerner states:

"As a result of the significant competition that has developed in the BDS marketplace, business data services provided through UNEs by non-ILECs are small and declining. Use of UNEs accounts for a small share of total use of BDS services. Although a precise estimate is difficult to determine, the share was likely much lower than 20 percent in 2013. CLECs account for about half of total BDS revenue, and the share of CLEC BDS revenue

¹⁹ Raw Bandwidth Opening Comments, top of page 24.

²⁰ *Id* at page 5 and 6.

attributable to circuit-based technology has been estimated at about 40 percent. (*footnote 57 discussed below*) This implies that CLEC revenue from using ILEC resources could account for at most 20 percent of total BDS revenue. But CLEC revenues are derived not only through the sale of services that use UNEs at mandated prices as wholesale inputs, but also from the sale services that use as wholesale inputs other ILEC services that CLECs lease at non-regulated rates.(*footnote omitted*) Thus, 20 percent represents a very conservative upper bound, and the true share is likely much smaller."

To restate Dr. Lerner's conclusion concisely, he's saying that 20% is a conservative upper bound on the percent of the total BDS market revenue generated by CLECs utilizing UNE inputs. Dr. Lerner is wrong that this is the conservative upper bound because he fails to account for the fact that 2-wire loop UNEs are used by CLECs to implement BDS services, such as Ethernet over Copper, that fall in to the Packet BDS category of the referenced White Paper. Note his statistic states that the "share of CLEC BDS revenue attributable to circuit-based technology has been estimated at about 40 percent." (emphasis added)

To verify that this is an error, we can look at the citation in footnote 57, particularly: Marc Rysman, "Empirics of Business Data Services," White Paper, April 2016 at 7, available at <https://docs.fcc.gov/public/attachments/DOC-340040A6.pdf>. At page 7 this White Paper breaks down both ILEC and Competitive Provider (CP) BDS revenue by Circuit- and Packet -based. Dr. Lerner's percentages can all be derived from this table. CP revenue of both types is approximately (a little more than) half of total BDS revenue. Approximately 40% of CP revenue (closer to 42%) is Circuit-based. But included in the other 58% of Competitive Provider BDS revenue would be packet-based BDS implemented by CLECs using 2-wire loop UNEs, such as Ethernet over Copper.

Dr. Lerner is correct that some of the revenue in the CLEC Circuit BDS category would be built with circuits purchased as non-price regulated wholesale inputs from ILECs or provisioned over non-ILEC facilities such as the CLEC's own. But the 58% of CP BDS revenues attributed to CP Packet BDS will also include substantial amounts of revenue generated by and dependent upon the use of 2-wire loop UNEs in services like Ethernet over Copper. The conservative upper bound is the entirety of the 51.4% of the total BDS revenues attributed to Competitive Providers, though certainly the actual amount of CP BDS revenues relying on 251(c)(3) UNEs will be lower, but could very well be well above 20% of total BDS revenue. At very least, we cannot consider 20% a conservative upper bound.

At ¶40-41, Dr. Lerner repeats the claim that ILECs experience disincentive to invest in new facilities due to mandated unbundling at "below-market" rates. ILECs are generally not required to invest in new copper facilities and typically wouldn't except in circumstances they're required to in most areas of the country at this point, and face no such disincentive to deploying fiber loops since there is no forced unbundling on fiber loops at all. Additionally they have the incentive to deploy fiber loops and achieve copper retirement in order to end CLEC wholesale UNE access in the copper-retired area.

At ¶42-43, Dr. Lerner claims CLECs will wait and see if ILEC investments are successful before making their own. This is not the case with the current state of affairs. As others commenters have pointed out, CLECs know that once copper retirement is achieved, we lose access. Dr. Lerner's theory that CLECs might wait and see might be the case if we were in an environment where CLECs could rent the new thing for awhile to see if it works out, then buy/build the new thing once it's proven, but we don't have that situation here, CLECs don't get to rent the new thing (ILEC fiber) first.

At ¶46, Dr. Lerner takes issue with the 22 years since the Act passed, and that if the stepping-stone was going to work, it'd have done so already. But Sonic is the perfect example that once the right conditions come together, the stepping-stone does work. The early years after the Act was passed involved a lot of litigation to hash out the rules and set TELRIC prices and avoided cost discounts, we had a stock market crash in the early 2000s, and later a recession. Many CLECs went out of business. Sonic didn't create its CLEC until 2006²¹, and then they deployed DSL and EoC widely for their size. Sonic started working on fiber, and have now found their footing on deploying FTTH and are doing so rapidly, especially for their size. In the time since the Act passed the cost of fiber cable and especially of ONTs to terminate FTTH in the home dropped significantly. The cost of splicing equipment dropped significantly and became easier to use. Other advancements in fiber-related technology and practices cut deployment costs. Sonic still faces numerous hurdles with

²¹ D.06-11-008, Decision of the California PUC granting Sonic a CPCN on 11/9/2006, available at http://docs.cpuc.ca.gov/word_pdf/FINAL_DECISION/61718.pdf as of 9/5/18

permitting and construction issues. Of important note, AT&T chose not to deploy FTTH widely in 2005/6 instead focusing on newer flavors of DSL with their U-verse platform, and only got started in earnest with AT&T's own FTTH deployment in the SF Bay Area *after* Sonic did.

Conclusion

Do you still have sight of the natural monopoly? It's ubiquitous, it's an actual monopoly (especially 2-wire copper loops), and needs to continue to be regulated to enhance and promote competition. There are no competitors to the ILEC for CLECs to get these ubiquitous natural monopoly facilities from, and thus we have no leverage to negotiate with ILECs in an unregulated environment. The Commission should maintain that status quo, and require ILECs to achieve copper retirement before they can cut off CLECs in a given area. The Commission must deny USTelecom's forbearance petition in order to preserve existing competition and encourage further investment by all broadband providers for the ultimate benefit of consumers and businesses.

Respectfully submitted,

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September 5, 2018